

Bloom in the Waters

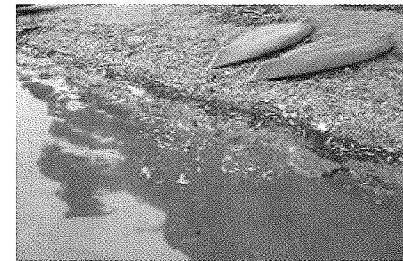
By Tom Welch

LATELY I HAVE BEEN SPLITTING my time between the Adirondacks and the Gulf Coast of Florida. While these areas are about as dissimilar as one can imagine, they share a serious problem: Deterioration of water quality from periodic “blooms” of organisms. A lot is written about the ecology of this phenomenon, so I will only touch upon it here. My emphasis will be on the health implications and “first aid.”

The biology here is complex, but can be distilled. Both fresh and salt water are normally colonized by a host of organisms, which are rarely harmful and which actually are important constituents of the aquatic food chain. Among these are a number of species of primitive plants classified as *algae*. Under most conditions, the populations of these organisms are kept in check by environmental factors such as temperature and the availability of nutrients, as well as through consumption by

higher organisms. Thus, they are not usually a concern.

Factors such as changes in water temperature and the presence of nutrients (like fertilizer runoff) can upset this delicate balance. The result is the occasional rapid, unchecked growth of algae. Depending upon the actual species, these “blooms” may produce discoloration of the water. Thus, the Gulf Coast has suffered from “red tide” while some Adirondack lakes have been struck by greenish discoloration, generally referred to as “harmful algae



HABs might have the appearance of pea soup or spilled green paint. Courtesy DEC.

blooms” (HABs).

The negative health effects of these blooms are not usually from the algae itself, but rather from a number of substances produced by the organism, called “toxins.” The toxins do their damage when people drink contaminated water or eat fish that have been consuming the algae, or when they inhale or experience skin contact with them.

Worldwide, there are very severe complications of toxin ingestion. In

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particular, contaminated shellfish can cause a variety of devastating neurologic illnesses such as ciguatera poisoning. While important, these illnesses have not been associated with Adirondack freshwater HABs.

It is unlikely that humans would consume Adirondack waters contaminated with HABs. When this has occurred, the result has been a gastrointestinal illness characterized by abdominal pain, diarrhea, and vomiting. Individuals exhibiting such a reaction should receive medical attention, although supportive care is about all that can be provided. (Note that consumption of

contaminated water by dogs or other pets can cause life-threatening reactions, and animals should receive emergency veterinary care immediately.) No method of personal water treatment will remove toxins.

Skin and eye contact with toxins is more common, because the toxins can get into the air, bypassing one’s direct exposure to water. Thorough removal of a toxin from skin with soap and water is the first step in first aid. Irritated eyes can be flushed with plain water. Antihistamines such as Benadryl® can be taken to ease symptoms.

Inhalation of toxin can produce respiratory symptoms, ranging from cough and runny nose to severe respiratory distress. The latter is much more common in individuals with chronic lung problems such as asthma; there may be an allergic component to them. Such reactions should prompt medical attention. Obviously, individuals with severe chronic lung disease should avoid even proximity to waters with HABs.

The New York State Department of Environmental Conservation (DEC)

has taken a leadership role in educating the public about HABs. One of their very helpful resources is at www.dec.ny.gov/chemical/77118.html. The U.S. Centers for Disease Control and Prevention also have resources devoted to the health implications of HABs. One such source of information is at www.cdc.gov/habs/general.html.

Hopefully without introducing a political subtext to this discussion, I would simply remind readers that both of the factors I cited as contributing to these blooms (temperature change and nutrient excess) have clear human causes. ▲

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